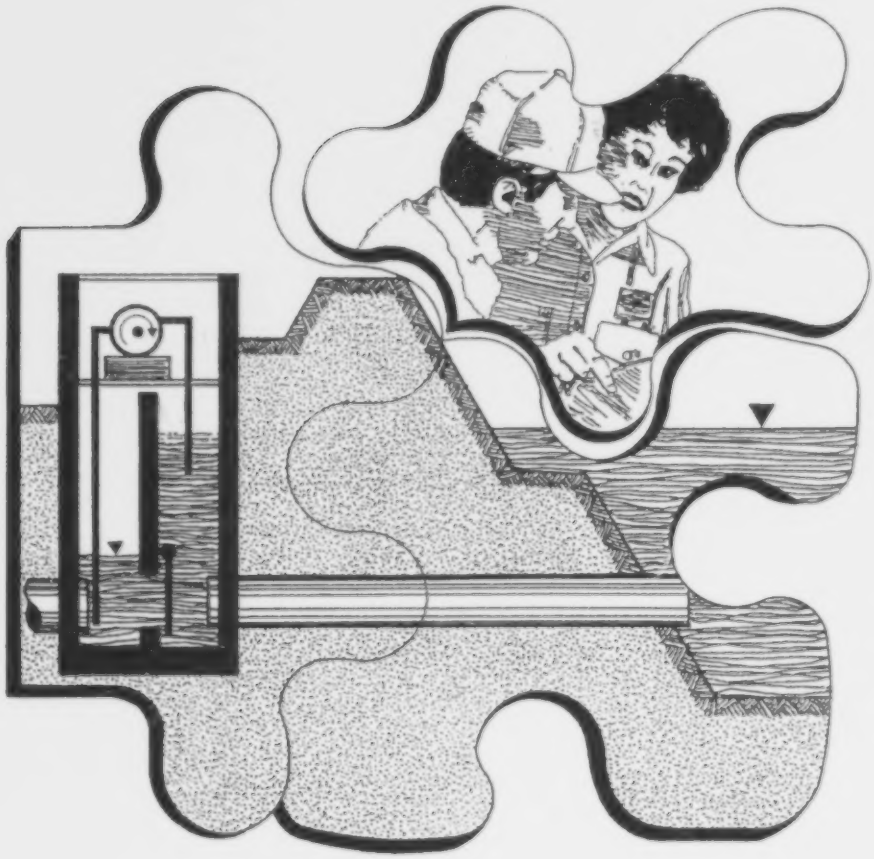
THE ANNUAL REPORT OF THE

DYKING COMMISSIONER

FOR THE YEAR ENDING DEC.31, 2004



SUBMITTED TO:

The Hon. Steve Ashton
MINISTER
Water Stewardship

SUBMITTED BY:

J. McLean P. Eng
DIKING COMMISSIONER

Manitoba

Water Stewardship

Infrastructure & Operations
Box 19 – 200 Saulteaux Crescent
WINNIPEG MB R3J 3W3
Phone: (204)945-3613
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April 8, 2005

File: 11.1.5

The Honourable Steve Ashton
Minister
Manitoba Water Stewardship
Room 314 Legislative Building
450 Broadway Avenue
WINNIPEG MB R3C 0V8

Dear Sir:

I have the privilege to submit, herewith, the Annual Report of the Dyking Commissioner for 2004 as required under Section 13 of *The Dyking Authority Act*.

The annual report covers the appraisal of the Greater Winnipeg Dyking System and ancillary Pumping Stations and also the University of Manitoba's Dyking System and ancillary Pumping Stations for the 2004 calendar year, to determine its adequacy to provide flood protection for the City of Winnipeg and the University of Manitoba.

As Commissioner, I had considered the current level of maintenance of the two systems to be satisfactory. The record rainstorms of March 28th and 29th, which fell on snow-covered ground is documented in the City of Winnipeg Report and the Dyking Commissioner's Report.

Recommendations are included on page 6 of the Report for 2004. Please note that The Act does not require this report to be tabled in the Legislature.

Yours truly,

J. McLean, P. Eng.
Dyking Commissioner

JMcLjb

Attachment

THE ANNUAL REPORT

OF THE

DYKING COMMISSIONER

FOR THE YEAR ENDING

DECEMBER 31, 2004

105-04189/

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1 Acknowledgements

Evaluation of the adequacy of the dyking system is based mainly on reports provided by the staff of the City of Winnipeg and the University of Manitoba. Their cooperation in providing annual reports and technical advice is gratefully acknowledged.

2 The Dyking Authority Act of 1952

The Dyking Authority Act D110, passed in 1952, was intended to ensure that the dykes and pumping stations constructed subsequent to the 1950 flood were maintained in a state of readiness to combat future floods. In fact, the full title of the original Act was *An Act to Provide for the Maintenance of Dykes and Pumping Stations in Greater Winnipeg.*

While authority and control over dykes and pumping stations was vested with the city or rural municipality in which they were situated, provision was made for the appointment of a Dyking Commissioner with powers to inspect dykes and pumping stations and to order work to be undertaken to maintain an integrated system of flood defence as well as to establish the location of the line of defence.

The Dyking Commissioner is required to "before the first day of April in each year, make to the Minister a report on the administration and carrying out of the provisions of this Act during the year ending on the thirty-first day of December next preceding the making of the report, and on the condition of the dykes, pumping stations, and pumps, and their sufficiency for the purposes for which they were constructed or installed."

3 Changes Since 1952

Several major changes have taken place since the passing of The Act in 1952.

1. Major flood control projects affecting river water surface levels in the City of Winnipeg have been completed, namely, the Red River Floodway in 1968, the Assiniboine River - Portage Diversion and Shellmouth Dam in the early 1970's.

2. Urban development has taken place beyond the lines of flood defence previously established.

3. The five cities and two rural municipalities subject to The Act have been amalgamated into a single city.

4. Under the Canada-Manitoba Flood Damage Reduction Agreement, Interim Flood Risk Maps designating Flood Risk Areas and Floodways in the City of Winnipeg were produced in 1980 and flood protection criteria for developments dictated by flood levels were defined.

5. The City of Winnipeg Act was amended in 1981 to recognize the designated flood risk areas and to establish revised criteria for development in flood prone areas.

6. As of January 1, 1992 the Designated Floodway Fringe Area Regulation 266/91 requires the Primary Dyke to be located, designed and constructed to the standard and elevation approved by the City Administrator and the Dyking Commissioner.

4 Current Issues and Actions

Changes to legislation and the dynamics of urban development give rise to issues from time to time. Issues currently being addressed include:

1. Flood defence lines continually requiring revisions to accommodate the effect of flood control/protection works and the impact of on-going urban development.

   The City is continuing to review the Primary Line of Defence for re-designation and extensions. Plans are prepared and submitted to the Dyking Commissioner for approval. Proposals have been reviewed with the Commissioner as noted in the City of Winnipeg report in Appendix D. The City has completed digital mapping of the 115 kilometres of primary dykes and maintains a comprehensive set of drawings/plans. This database has been incorporated within the City's new Flood Protection System - Operation and Maintenance Manual.

2. Since the 1997 "Flood of the Century", a number of initiatives have been undertaken with respect to enhancing the level of flood protection for the City. All have implications for future administration of *The Dyking Authority Act*.

   i) The International Joint Commission (IJC) initiated comprehensive studies of the City's flood defence systems that identified vulnerabilities and proposed strategies for flood risk reduction. The final report, entitled "Living with the Red", was issued in December of 2000. The Report contained several conclusions of which the following perhaps bears most significantly on the future of the Primary Dyking System in Winnipeg: "Under flow conditions similar to those experienced in 1997, the risk of a failure of Winnipeg's flood protection infrastructure is high. Public safety requires that the city, province and Canadian federal governments focus immediate attention on designing and implementing measures to further protect Winnipeg."

   In April of 2003, the governments of Canada and Manitoba announced an Agreement to provide up to $160M towards the Floodway Expansion Project. On April 30, 2003, Mr. Ernie Gilroy was appointed Chief Executive Officer of the Manitoba Floodway Expansion Authority. This Crown agency was established as the body responsible for bringing to fruition the Floodway Expansion Project. An Application for Environmental Licensing of the project was submitted in July and by December senior executive had been appointed, and pre-design engineering and environmental assessment consultants retained. An additional $80M in funding was announced by both senior levels of government.

- IJC Recommendation #7 - "The Primary Dyking system for Winnipeg should be raised where economically feasible to the elevation specified in existing legislation."

There remain several locations within the City where the designated Primary Line of Defence is slightly below the Flood Protection Level for short distances. The City has identified these reaches for permanent upgrading as programming allows. Although the proposed Floodway Expansion Project includes these upgrades, a funding agreement had not been finalized with the City of Winnipeg as of December 2003.

- IJC Recommendation #11 - "The City should give immediate high priority to the preparation of a detailed emergency preparedness and response manual".

In the spring of 2004, instead of the typical snowmelt event, heavy rains in the range of 50 to 70 mm on March 28th and 29th (over the Manitoba portion of the Red River basin) resulted in a combination of rainfall/snowmelt runoff peak. As the rains occurred over frozen ground conditions high runoff rates wore observed. On April 4th, 2004 the Red River peaked at 19.0 feet above city datum at St. James Street. All flood pumping stations and gate chambers were activated. This allowed the city to test the Flood Activity/Emergency Operations Manual for the City's flood protection infrastructure. It proved successful and the Emergency Operations Manual was completed in 2004.

ii) The City entered into an agreement with both the federal and provincial governments to provide enhanced secondary flood protection works (i.e. on the river side of the Primary Line of Defence). The agreement, whose term has been extended to March 31, 2005, provides a total of $11.1M for upgrades to both individual property site flood protection and community secondary ring dykes within the City Limits. The Dyking Commissioner is a member of the Technical Advisory Committee that coordinates the implementation of the agreement, as several of the proposed works lie within the designated Floodway Fringe of the Red River.

As of December 2004:

Community Ring Dikes - on Scotia Street and North Drive along with lower river bank stabilization for the Lord Avenue dike was completed.

Multi-Family Projects - three major sites: 99/141 Wellington Crescent, 1660 Pembina Highway, and One, Seven, and Eleven Evergreen Place were completed.

Individual Projects - fourteen sites were completed prior to 2004.

5 Inspection of Facilities

The City of Winnipeg and the University of Manitoba have ongoing inspection and maintenance programs. The programs for 2004 are described in detail in the reports under Appendix D.

Recognition is hereby acknowledged that the City and University apply appropriate levels of care to the maintenance of their respective flood protection facilities.

6 Reports by the City of Winnipeg and the University of Manitoba

A questionnaire was sent to the City of Winnipeg and to the University of Manitoba requesting information for the purpose of preparing this report. A copy of the request and questionnaire is included in Appendix C. The replies to the questionnaire, included in Appendix D, indicate that regular monitoring, detailed inspections and necessary maintenance work was carried out.

7 Primary Dyking System Report

1. Pumping Stations and Gates

Were used during the rainfall of March 28 and 29 as shown in City of Winnipeg Report.

Normal annual maintenance activities were undertaken on the pumping stations and gate chambers in 2004. The City of Winnipeg's Water and Waste Department continued to upgrade the lift station alarm and monitoring systems, and both the flap style and positive gate configurations at the automated stations.

The University of Manitoba noted that monitoring of riverbanks is conducted regularly at 13 river bank locations.

The specific details of these programs are outlined in the attached Appendix D.

2. Primary Line of Defence

Operation: No dyke closures or dyke raising operations were required in 2004 with respect to the primary dykes. Operations were confined to gate closures and sewer pumping.

Administration: Updated drawings are included in Appendix B indicating the most recent authorized revisions to the Primary Line of Defence within the City of Winnipeg.

8 Additional Works Constructed

Final grading and sodding of the dykes in the vicinity of Waterfront Drive and the new Provencher Bridge and its adjacent pedestrian bridge was completed in 2004.

9 Recommendations

It is recommended the City of Winnipeg continue its efforts to complete all necessary rehabilitation and upgrading to the primary dykes, pump stations, gates and outfalls through the primary dyke, to improve the integrity of the system. The proposed $660M Floodway Expansion Project includes an estimated $110M in expenditures related to upgrading various components of the Primary Dyking system.

It is recommended the City of Winnipeg, with the assistance of the Dyking Commissioner, ensure that permanent modifications to the secondary dykes do not detrimentally impact the Designated Red River Floodway channel, the primary dykes or local drainage outlets.

10 Appendix A

City of Winnipeg
List of Flood Pumping Stations and Gate Chambers

CITY OF WINNIPEG FLOOD CONTROL FACILITIES - 2002

PERMANENT FLOOD PUMPING STATIONS:

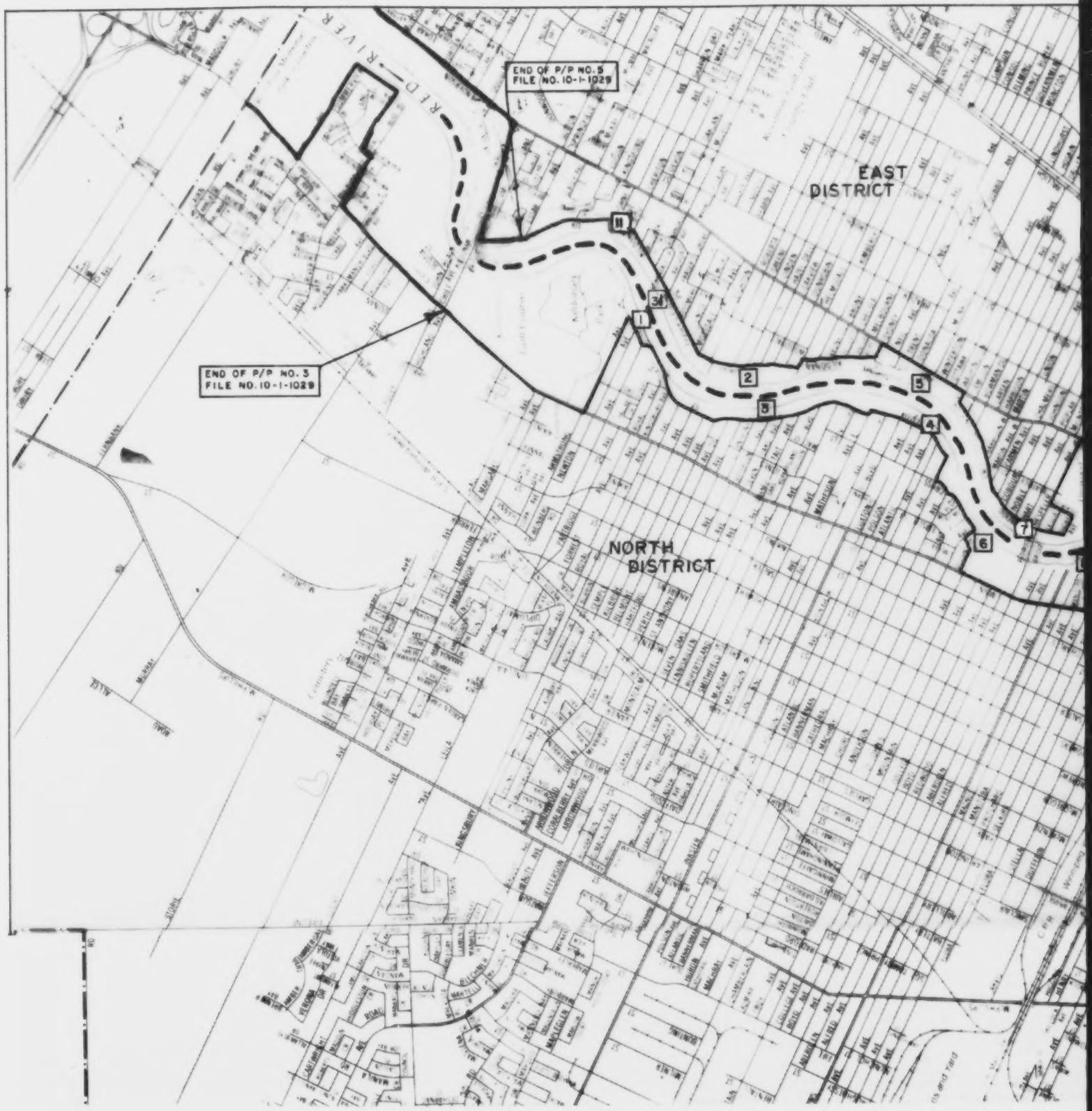
1 Newton
2 Linden
3 Jefferson
4 Polson
5 Monroe
6 St. John
7 Hart
8 Selkirk
9 Syndicate
10 Archibald Underpass
11 Hawthorne
12 Galt
13 Bannatyne
14 Assiniboine
15 Colony
16 Cornish
17 Aubrey
18 Clifton
19 Mission
20 Laverendrye
21 Dumoulin
22 Despins
23 Mayfair
24 Ash
25 Marion
26 Jessie
27 Metcalf
28 Baltimore
29 Wager Drive
30 Cockburn
31 Larchdale
32 Turnbull Drive
33 St. James Underpass
34 Roland

GATE CHAMBERS:

Rainbow Stage
St. Mary's Road
Armstrong
Ft. Rouge Park
Maryland
Renfrew
St. Norbert X-Kalay
Eccles (new 1200mm SRS)
Wildwood Golf Course
X-Kalay Drive Culvert
Darcy @ Glengarry
Crane @ Southdrive (WWS)
Kilkenny N. of Radcliffe
N.E. Interceptor
Ruby
Pembina & Crane
Aubrey (Storm)
Kingston Row CSO
Trappiste @ Pembina
Assiniboine E.
Assiniboine W.
Burrows
Calrossie @ Riverside
Ducharme @ Villineuve
Eccles (old 750mm SRS)
Kilkenny & Rice
Lombard
McDermot
Spence
Somerset @ Riverside
Bredin Drive
Canora
Guay
Churchill Drive Underpass
Churchill High School
Bredin Drive
Chataway
Deer Lodge Place
Douglas Park
Ferry Road
Kildonan Park
Lemay & Lord
Olive Street
Conway
Cranestorm
Donald Street
Dowker Outfall
Osborne @ St. Vital Bridge G.C.
Hargrave Street
Inkster
Kennedy
Kingston Row Underpass
Riviera Crescent Outfall
Water Avenue
Clarence & Hamlin
Colony
Dieppe
Hawthorne
Parkside 30"
Parkville
Sommerville & Beaumont
St. Boniface Hospital MH
Kildare
Riverdale
McLeod Cr. & Kildonan Cor.
Donacaster
Dunham Road
Plaza Drive
Pulberry
Seel & Fennel
Darcy 43 m N. of Glengarry
Glasgow
Summerview Lane
South St. Vital Ret. Basin
N St. Boniface LDS
Shier Drive
Barker
Waverley Lakes
Arlington
Calrossie Outfall
Conway
Moore
Strathmillan
Wexford
Killarney
Rowandale
Ridgedale
River Point Pl.
Clifton Overflow (Omands Cr.)
Forks
Heritage
N.E. Interceptor Manhole
King Edward Storm
Kingston Row @ Elm Park
Riverbend 90"
Tylehurst
Lot 16 Gate
Fermor

11 Appendix B

City of Winnipeg Maps - Showing District Boundaries,
Flood Defence Lines and Pumping Station Locations


RIO RIVER
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END OF P/P NO. 5
FILE NO. 10-1-1029
EAST
DISTRICT
NORTH
DISTRICT
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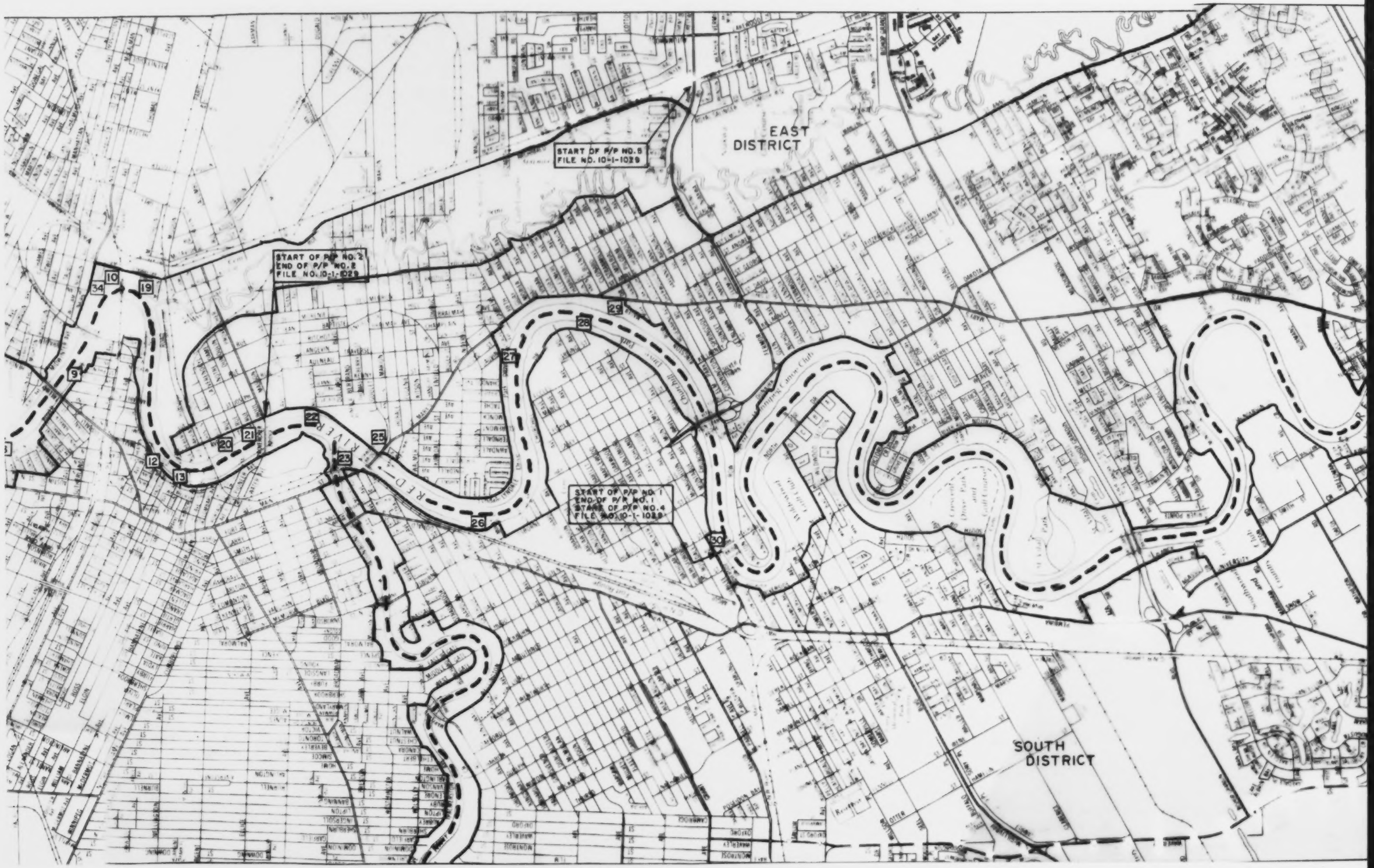
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END OF P/P NO. 2
FILE NO. 10-1-1029
START OF P/P NO. 1
END OF P/P NO. 1
START OF P/P NO. 4
FILE NO. 10-1-1028
RED RIVER
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34

WATER BRANCH

CITY OF WINNIPEG PRIMARY DYKE

DISTRICT BOUNDARIES — — —

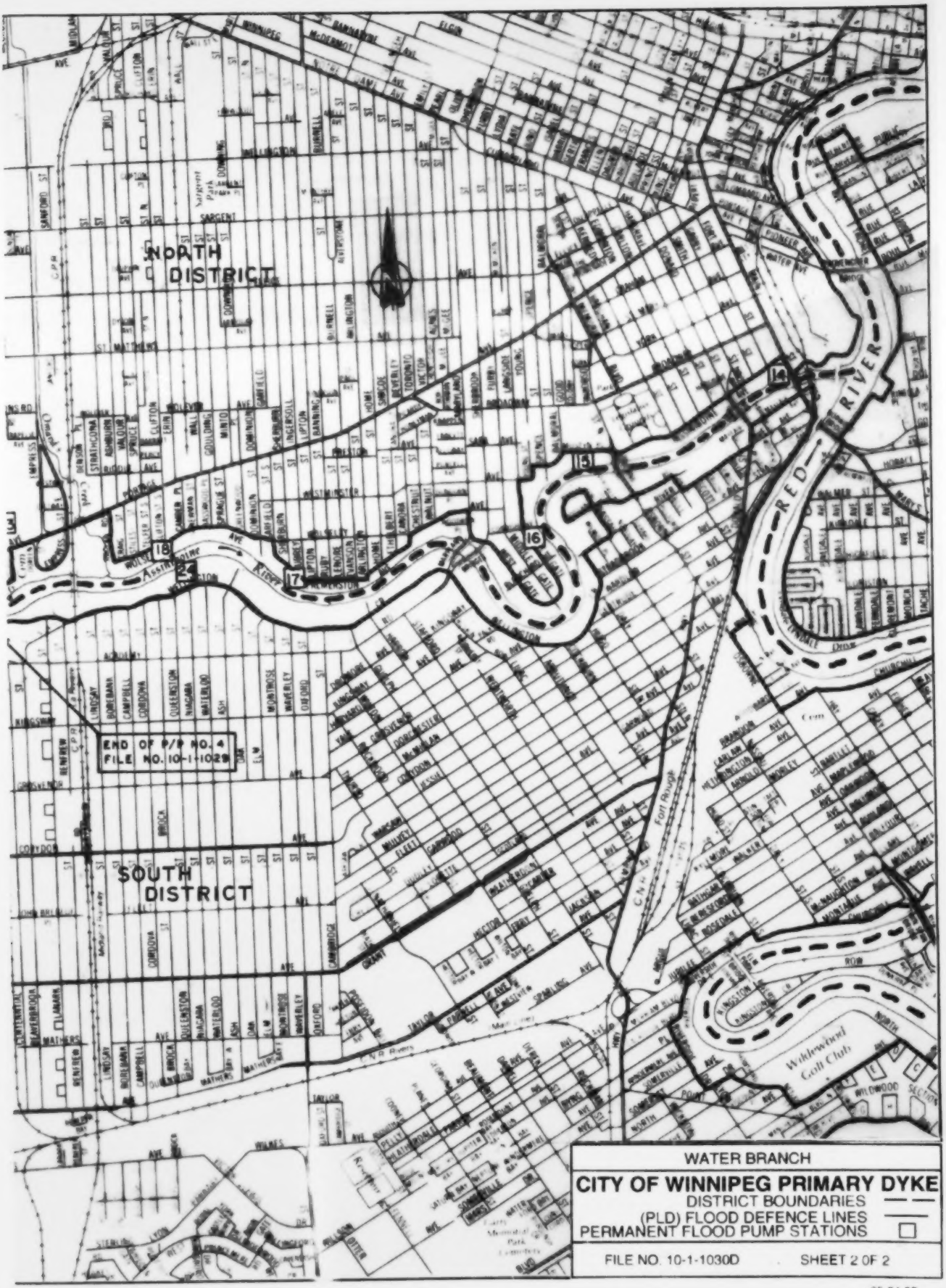
(PLD) FLOOD DEFENCE LINES ———

PERMANENT FLOOD PUMP STATIONS □

FILE NO. 10-1-1030D SHEET 1 OF 2

05 04 02

Winnipeg International Airport
CITY LIMITS
PADDOCK RD
HIGHWAY
WELLINGTON AVE
FLIGHT RD
SARGENT
ALLEN DENE RD
ELLICE
ST MATTHEWS
CENTURY
SILVER
Assiniboine Golf Course
START OF P/P NO. 5
FILE NO. 10-1-1029
Assiniboine Park
Tuxedo Golf Course
Forest
Chapel Lawn Memorial Gardens and Assiniboine Cemetery
Glendale Country Club
St. Charles Country Club
THOMPSON AVE
SOUTHBOURNE
RANNOCK
RIVER


NORTH DISTRICT
SOUTH DISTRICT
RED RIVER
Assiniboine River
Fort Rouge
Wildewood Golf Club
END OF P/P NO. 4
FILE NO. 10-1-11028
14
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18
WATER BRANCH
CITY OF WINNIPEG PRIMARY DYKE
DISTRICT BOUNDARIES
(PLD) FLOOD DEFENCE LINES
PERMANENT FLOOD PUMP STATIONS
FILE NO. 10-1-1030D
SHEET 2 OF 2
05 04 02

12 Appendix C

Copy of Questionnaire to:

The City of Winnipeg
and
The University of Manitoba

Manitoba

Water Stewardship

Infrastructure and Operations Division
Water Control and Infrastructure Branch
Box 19 – 200 Saulteaux Crescent
WINNIPEG MB R3J 3W3
Phone: (204)945-3613
Fax: (204)945-7419

December 2, 2004

File: 11.1.5

Mr. Barry McBride
Director, Water & Waste Department
The City of Winnipeg
101 – 1155 Pacific Avenue
WINNIPEG MB R3E 3P1

Dear Mr. McBride:

RE: Dyking Commissioner's 2004 Annual Report

The Dyking Authority Act, Section 15, requires that:

> "The commissioner shall, before the first day of April in each year, make to the minister a report on the administration and carrying out of the provisions of this Act during the year ending on the thirty-first day of December next preceding the making of the report, and on the condition of the dykes, pumping stations, and pumps, and their sufficiency for the purposes for which they were constructed or installed."

To assist in making this report I request that you supply me with a report on the dyking system and pumping stations under your jurisdiction for the 2004 calendar year **by February 25, 2005**. For convenience, I am including a standard questionnaire similar to that used in previous years. I would also appreciate any additional information regarding the effort that the City undertook in regard to maintaining the integrity of the dyking system during high water this past spring.

Yours truly,

Jim McLean, P. Eng.
Dyking Commissioner

cc: Steven D. Topping
Enclosure
JMcL/jb

Manitoba

Water Stewardship

Infrastructure and Operations
Box 19 – 200 Saulteaux Crescent
WINNIPEG MB R3J 3W3
Phone: (204)945-3613
Fax: (204)945-7419

December 2, 2004

File: 11.1.5

Mr. Allan Simms
Associate Vice-President
Ancillary & Physical Resources
208 Administration Building
University of Manitoba
WINNIPEG MB R3T 2N2

Dear Mr. Simms:

RE: Dyking Commissioner's 2004 Annual Report

The Dyking Authority Act, Section 15, requires that:

> "The commissioner shall, before the first day of April in each year, make to the minister a report on the administration and carrying out of the provisions of this Act during the year ending on the thirty-first day of December next preceding the making of the report, and on the condition of the dykes, pumping stations, and pumps, and their sufficiency for the purposes for which they were constructed or installed."

To assist in making this report I request that you supply me with a report on the dyking system and pumping stations under your jurisdiction for the 2004 calendar year **by February 25, 2005**. For convenience, I am including a standard questionnaire similar to that used in previous years. I would also appreciate any additional information regarding the effort that the University undertook in regard to maintaining the integrity of the dyking system during high water this past spring.

Yours truly,

Jim McLean, P. Eng.
Dyking Commissioner

cc: Steven D. Topping
Enclosure
JMcL/jb

13 Appendix D

Replies to Questionnaire

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2004 Flood Activity Report
For The City of Winnipeg

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1.0 INTRODUCTION

The City of Winnipeg, Water and Waste Department is responsible for the Primary Line of Defence (primary dyking system) and the flood pumping stations within the City of Winnipeg. The following report summarizes the operations of these facilities for the 2004 calendar year.

Throughout the year, the Water and Waste Department's Collection System crews inspected all flood pumping stations once per week. All stations were checked for temperature, basement flooding and vandalism. All problems were repaired as soon as possible.

Commencing in the month of February, all stations were given a complete maintenance check to ensure that these facilities were ready for operation when required. This annual servicing includes:

i) lubricating and operating all positive gates on sanitary, storm and combined sewers;
ii) inspection of all wet well floats;
iii) lubricating and operating of all pumps and equipment within the station;
iv) inspection of all electrical main boxes, starter boxes and motors;
v) inspection of all high voltage transformers and equipment;
vi) inspection of automated control system, where installed.

The spring of 2004 was an unusual spring runoff event. Instead of the typical snowmelt event, heavy rains in the range of 50 to 70 mm on March 28 & 29th (over the Manitoba portion of the Red River basin) resulted in a combination rainfall/snowmelt runoff peak. As the rains occurred over frozen ground conditions high runoff rates were observed. On April 4th, 2004 the Red River peaked at 19.0 feet above City datum at James Ave. The river then receded to normal summer water level by April 29th, 2004. During this event the Red River Floodway was operational.

A second peak for 2004 occurred on June 9th when the Red peaked at 15.3 feet above James Avenue Datum. Figure 1 illustrates the 2004 high river level events, by plotting daily river levels during the year's high river level period. Table 1 summarizes the flood activities for 2004. River elevations shown in this table are in imperial units and are recorded in James Avenue stages.

During October all of the flood-pumping stations were winterized in conjunction with the routine weekly checks. Thirty (30) of the City's 34 flood pumping stations are now automated. Twenty-nine (29) are automated to activate at between 8'-19'James Avenue datum, with one other station automated at 20' James. The remaining 4 stations are activated manually at between 20'-22' James. The Water and Waste Department has also completed its program to upgrade the configuration of the flap and positive gates at the automated stations.

The City records water levels on a continuous basis at 3 sites on the Red River: Chief Peguis Br., James Ave and Bishop Grandin Br. (Route 165) and at 5 sites on the Assiniboine River. This data is stored electronically in the City's Supervisory Control and Data Acquisition (SCADA) system and is retrievable.

Monitoring of some Stormwater Retention Basin levels were undertaken in 2004, specifically in the Whyte Ridge and Bunn's Creek areas. Performance of the Lot 16 Drain and other major channels was excellent in 2004 as no Stormwater Retention Basin drainage difficulties were encountered.

The Water and Waste Department continues to update information contained in the Flood Control Manual as discussed in Section 5.0.

2.0 EXTENSIONS AND REDESIGNATIONS OF THE PRIMARY LINE OF FLOOD DEFENSE

2.1 East Area

2.1.1 Normand Park Development Dyke. In December 1999, the Water and Waste Department requested the Dyking Commissioner's approval-in-principle for designation of the dyke as per the drawings described in Section 3.0.

On May 24, 2002, the Dyking Commissioner granted interim authorization for this section of dyke. Full authorization will be granted when the topwidth is widened to 9.2 m.

2.2 North Area

2.2.1 Pioneer and Waterfront Drive: Sodding of new clay dykes was completed in the fall of 2004.

2.1 South Area

2.3.1 St Norbert School Dyke – During the 1997 Flood event, a permanent earth dyke was constructed through the Seine River School Division property extending from the exiting dyke South of the St. Norbert Cemetery at the East to Rue Campeau to the West. In December 1999, the Water and Waste Department requested the Dyking Commissioner's approval-in-principle for designation of the dyke as per the drawings described in Section 3.0. On May 24, 2002, the Dyking Commissioner declined approval, as one section was below the Flood Protection Level. The City is currently undertaking a review of deficiencies in the City's PLD line and will be developing a plan to address this and other PLD deficient areas.

2.3.2 Victoria Crescent: Small localized sloughing of the bank has occurred. Repairs were planned this year, but time did not permit. Repairs will be undertaken in 2005.

2.3.3 Churchill Drive at Eccles near Riverview Health Centre. Geotechnical inspections this fall indicated a localized sloughing failure. Repairs are planned for 2005.

3.0 PRIMARY LINE OF DEFENCE (PLD) MAPPING

In March of 2000, the Water and Waste Department completed a lengthy project to produce plan/profile drawings of the City's 115 kilometres of primary dykes. These drawings update the plan/profiles prepared by the Provincial Water Control and Conservation Branch in 1967 in a modern, revisable format. The drawings also identify deficiencies in the dyking system, location of manholes, pipes, catch basins, outfalls and control chambers which breach the dykes, and areas where the dyke should be realigned to keep pace with new development. In total 119 plan/profile drawings at a scale of 1:2000 have been produced.

4.0 SECONDARY LINE OF DEFENCE (SLD)

Over the past 5 years, the City of Winnipeg has participated in a $11.1 million program called the Canada-Manitoba-City of Winnipeg Agreement on Secondary Dyking Enhancements. This program is coming to a close and will terminate on March 31, 2005. This program resulted in raising the secondary dykes in a number of locations within Winnipeg. If technically feasible these dykes were raised to the City's Flood Protection Level.

The program was divided into 3 main components:

1. Community Ring Dykes;
2. Multi-family Flood Proofing projects (apartments, condominiums etc); and
3. Individual Flood Proofing projects.

In 2004, work was completed in the following areas:

1. Community Ring Dykes – dykes on Scotia Street and North Drive along with lower river bank stabilization for the Lord Ave dyke
2. Multi-family projects– 3 major sites: 99/141 Wellington; 1660 Pembina Highway; and One, Seven and Eleven Evergreen Place
3. Individual projects – Fourteen sites were completed prior to 2004.

Following the 1997 flood the City of Winnipeg passed the "Secondary Dyke Bylaw", No. 7600/2000. This bylaw protects the integrity of existing permanent dykes and establishes a dyking corridor at locations where temporary secondary dykes would be required in an emergency. The corridor prevents obstructions, such as decks or garages, which would impede the timely erection of a temporary dyke. The current bylaw has been under review and proposed amendments will likely be forthcoming in the spring of 2005.

5.0 FLOOD ACTIVITY / EMERGENCY MANUAL

As discussed in previous annual reports, following the 1997 flood the Water and Waste Department engaged Professional Engineering Services for the preparation of an electronic overall flood activity and emergency manual for the entire City of Winnipeg. This electronic manual outlines the City's flood protection activities that must be undertaken based on forecasts of river levels, such as gate closures, pump station activation etc. This work was essentially completed in 2004.

The manual is a "living" document that is updated on an ongoing basis as changes are made to the City's flood protection system. Changes discussed in Sections 4.0 and 6.2 of this report are now included in the manual.

6.0 RESPONSES TO DYKING COMMISSIONER'S QUESTIONNAIRE

The following are the responses received from the Public Works Department and the Water & Waste Department:

6.1 Public Works Department - Engineering Division.

1. For the Reporting Year (2004):

a) *Difficulties and problems encountered?*

There is a concern that riverbank instabilities could undermine a section of Pembina Highway immediately north of the Grandmont Boulevard intersection in St Norbert.

b) *Maintenance and repairs carried out?*

None

c) *New Sewer Outfall Gate Structures constructed?*

None

d) *Improvements and modifications carried out?*

Completed the landscaping of the new clay dykes around the Provencher Bridge and along Waterfront Drive.

2. *Proposed Plans for the Future?*

A preliminary design study is underway to address instabilities of the riverbank along the eastside of Pembina Highway just north of the Grandmont Boulevard intersection in St Norbert.

3. River Bank Stability

a) *Evaluation of river bank stability in critical areas.*

Ongoing monitoring of slope indicators located on the east bank of the Red River at the Provencher and Redwood Bridges and west bank of the Red River just north of Grandmont Boulevard.

b) *Monitoring erosion of river banks in critical areas.*

- Riverbank erosion is monitored by visual inspection at all river crossings.
- No significant erosion note in 2004.

c) *Any remedial works undertaken or completed in the reporting year?*

None.

4. Availability and Location of Proposed Borrow Pits

There was no change to the availability and location of proposed borrow pits.

6.2 Water & Waste Department. - Engineering Division

In 2004 the following upgrades to Flood Pumping Stations were completed.

- Dumoulin:- Replaced the outfall and installed a shear key and riprap
- Metcalfe: - installed a new gate chamber
- Jessie, Baltimore, Cornish, Colony & Aubrey: - installed a new electrical service.

The City of Winnipeg continues to upgrade and rehabilitate it's land drainage outfalls to the river. The current 2004/2005 winter work covers upgrades to those outfalls in the range of 18 to 23 ft James Ave datum as shown in Table 2. The work below will be completed by the end of March 2005.

In the winter of 2004 approximately 25 m of existing 900 mm corrugated steel outfall pipe at the end of Strathmillan Rd. on the Assiniboine River was replaced with 1350 mm concrete pipe.

Table 2
2004 Land Drainage Outfalls Upgrades

Locations	Outfall Size	Description of Work	James Avenue Activation Level
Kilkenny & Rice	1500mm outfall	2 New Flaps and New Addition to Chamber	18 ft
Dunham Road at North Drive	1200mm outfall	New Addition and New Flap	18 ft
Rue la Verendrye at Tache	1200mm outfall	New Flap and Sluice and New Chamber	21 ft
Pritchard East of Austin	300mm outfall	2 New Flaps	22 ft
Comanche Road at Iroquois Bay	375mm outfall	New flap and Gate Valve and New Manhole	22 ft
Stormont Drive South of Cloutier	450mm outfall	New flap and Gate Valve and New Manhole	22 ft
Bishop Grandin Blvd. #2 at Red River Road	750mm outfall	New flap and Sluice and New Gate Chamber	23 ft
Elmwood Park Bredin	750mm outfall	New flap and Sluice and New Gate Chamber	16 ft

6.3 Water and Waste Department - Water Services Division

Were any difficulties or problems encountered with any sewer facilities with respect to high river levels, i.e., leaking gates?

There were no difficulties or problems with any of the sewer facilities as it relates to high river levels in the spring.

Were any repairs carried out on the sewer system to maintain or improve flood protection to the City, i.e. leaking gate repaired or replaced?

One repair was made to the gate located at Parkwood Place (south), locking nut was split and gate could not be fully seated.

Were any sewer outfall gate structures newly constructed or upgraded?

See 6.2

Were there any other modifications carried out to the sewer system or dyking system, not mentioned above, that improved flood protection?

Archibald Underpass – Responding to a request from Public Works the discharge pipe was cleaned during the year and is now being replaced.

Crane and South Dr. - A new sanitary station was completed and the temporary weir that had been installed to allow work to proceed has been removed.

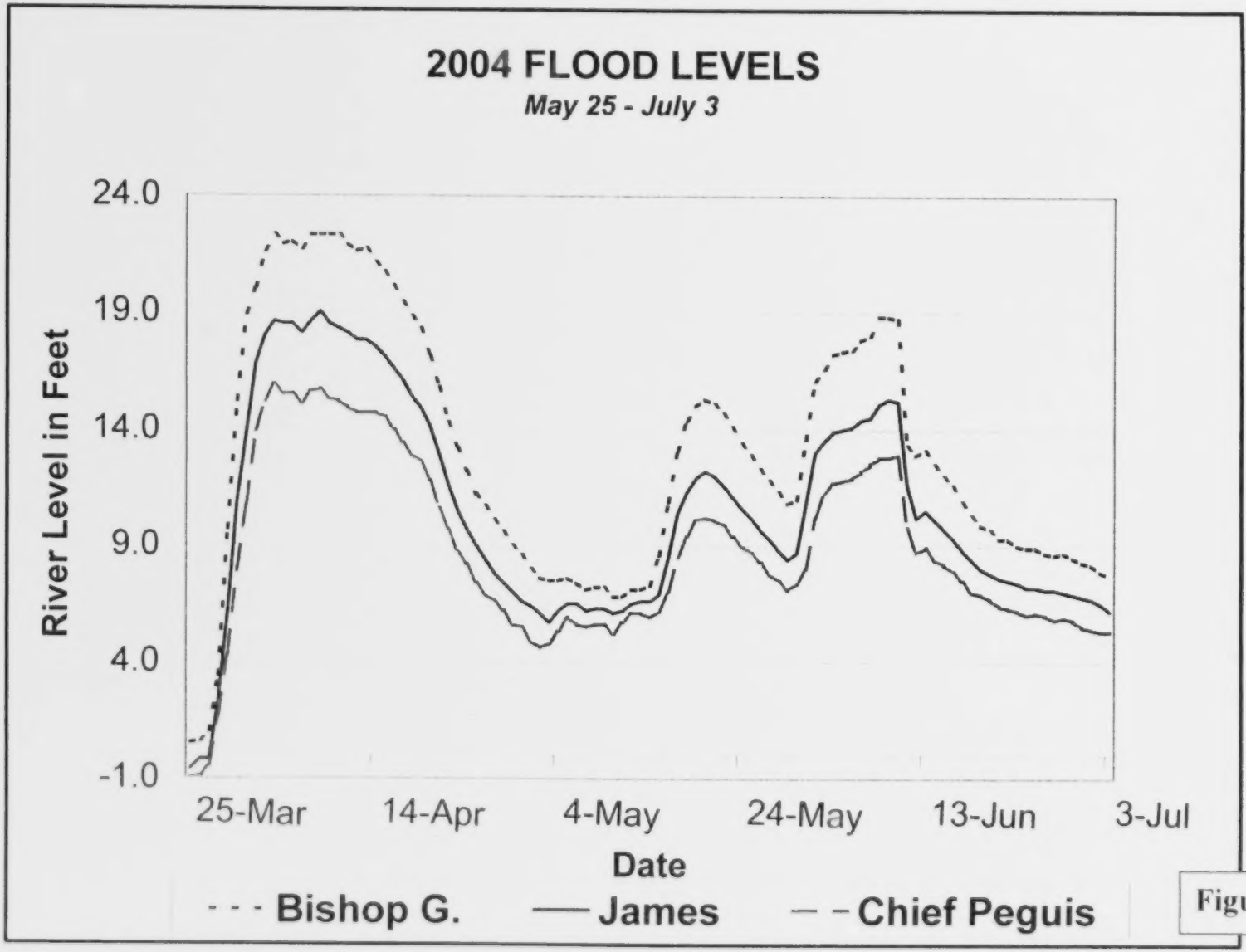
2004 FLOOD LEVELS
May 25 - July 3
River Level in Feet
24.0
19.0
14.0
9.0
4.0
-1.0
25-Mar
14-Apr
4-May
24-May
13-Jun
3-Jul
Date
Bishop G.
James
Chief Peguis

Figure 1

Table 1 – Summary of City of Winnipeg Flood Pumping Activities for 2004

Activation Date	Deactivation Date	Activation Level	Location	Procedure	Comments
			Minerva and Pembina Hwy Median GC	Close Culvert Gate	
3/28/2004		4	Turnbull Drive LD FPS (344 Turnbull Drive)	Activate Land Drainage Flood Pump Station (LDFPS)	
4/5/2004 15:00		18.4	Turnbull Drive SRB culvert outfall (south of the Floodway Inlet Structure)	Check Flap Gate - if leaking attempt to correct.	closed positive gate flap gate not holding
4/3/2004 14:27		18.6	Kildare at Day (cross-connection)	Check Flap Gate - if leaking attempt to correct.	FLAP HOLDING
4/3/2004 17:07		18.6	Wayota N of Kildare (cross-connection)	Check Flap Gate - if leaking attempt to correct.	closed positive gate. flap gate not holding. no pump set yet.
					opened gate 04/1404 river level 17.4. water in storm dropped.
4/3/2004 14:27		18.6	Kildare at Leola (cross-connection)	Check Flap Gate - if leaking attempt to correct.	FLAP HOLDING
4/3/2004 14:27		18.6	Wayota at Coldstream (cross-connection)	Check Flap Gate - if leaking attempt to correct.	FLAP HOLDING
4/3/2004 14:27		18.6	Wayota at St. Claire (cross-connection)	Check Flap Gate - if leaking attempt to correct.	FLAP HOLDING
4/3/2004 14:27		18.6	Kildare at Wabasha (cross-connection)	Check Flap Gate - if leaking attempt to correct.	FLAP HOLDING
4/3/2004 14:27		18.6	Yale Ave at Day St (cross-connection)	Check Flap Gate - if leaking attempt to correct.	FLAP HOLDING
4/3/2004 14:27		18.6	Wayota at Yale (cross-connection)	Check Flap Gate - if leaking attempt to correct.	FLAP HOLDING
4/3/2004 14:27		18.6	Brewster St at Regent Ave W (cross-connection)	Check Flap Gate - if leaking attempt to correct.	FLAP HOLDING
4/3/2004 14:27		18.6	Kildare at Widlake (cross-connection)	Check Flap Gate - if leaking attempt to correct.	FLAP HOLDING
			Pembina Hwy at the West Dyke	Raise Primary Dyke	
			Kildare at Floodway GC	Check Flap Gate - if leaking attempt to correct.	
			Kildare at Floodway GC	Set up temporary pumping	
4/3/2004 14:27		18.6	Kildare at Floodway GC	Monitor	EVERYTHING O.K.
4/3/2004 14:27		18.6	Yale at Winona (cross-connection)	Check Flap Gate - if leaking attempt to correct.	FLAP HOLDING
4/3/2004 14:27		18.6	Yale at Madeline (cross-connection)	Check Flap Gate - if leaking attempt to correct.	OK
4/3/2004 14:27		18.6	Wabasha at Park Circle N. (cross-connection)	Check Flap Gate - if leaking attempt to correct.	OK
4/3/2004 14:27		18.6	Ravelston at Leola (cross-connection)	Check Flap Gate - if leaking attempt to correct.	OK
3/29/2004 15:45		8.4	St. John's Park FPS GC (South of St. John's FPS)	Check Flap Gate - if leaking attempt to correct.	
3/29/2004 14:30		8	Mayfair FPS (Mayfair at Main Street)	Check Flap Gate - if leaking attempt to correct.	FLAP GATE WAS LEAKING- CLEARED
3/29/2004 9:40		6.5	Fermor GC (Fermor at Dunkirk)	Check Flap Gate - if leaking attempt to correct.	
3/29/2004 18:50		9.1	Spence GC (Spence at Balmoral)	Check Flap Gate - if leaking attempt to correct.	
3/29/2004 9:25		6.5	Osborne at St. Vital Bridge GC	Check Flap Gate - if leaking attempt to correct.	
3/29/2004 17:45		8.9	Redboine Yacht Club GC (East of Redboine Yacht Club)	Check Flap Gate - if leaking attempt to correct.	

4/1/2004 16:07	16.7	River Pointe Place GC (Ravine south of Marguerite)	Check Flap Gate - if leaking attempt to correct.
		Health Sciences Centre	External Agency - Notification / Communication
3/29/2004 16:50	8.6	Walmer SRS GC (Walmer at Lyndale)	Check Flap Gate - if leaking attempt to correct.
		St. Boniface Hospital	External Agency - Notification / Communication
3/29/2004 11:00	7.3	Marion FPS (Marion at Lyndale)	Check Flap Gate - if leaking attempt to correct.
3/29/2004 16:40	8.6	Highfield LDS GC at Lyndale Drive	Check Flap Gate - if leaking attempt to correct.
3/29/2004 12:30	7.8	Jessie FPS (Jessie at Osborne)	Check Flap Gate - if leaking attempt to correct.
3/29/2004 9:10	6.4	Eccles GC (newer 1200 mm SRS (west)) (Eccles at Churchill)	Check Flap Gate - if leaking attempt to correct.
3/29/2004 12:20	7.6	Cockburn FPS (Cockburn at Churchill Drive)	Check Flap Gate - if leaking attempt to correct.
3/29/2004 11:59	7.4	Ash FPS (Ash at Wellington)	Check Flap Gate - if leaking attempt to correct.
3/29/2004 17:00	8.7	Av De La Cathedrale at Tache Av (New LDS GC)	Check Flap Gate - if leaking attempt to correct.
3/29/2004 10:30	7.2	St. Norbert X-Kalay GC (new 2003) (#3154Pembina - behind St. Norbert C.C.)	Check Flap Gate - if leaking attempt to correct.
3/29/2004 9:45	6.9	La Verendrye FPS (La Verendrye at Tache)	Check Flap Gate - if leaking attempt to correct.
3/29/2004 11:20	7.3	Despins FPS (Tache at Despins)	Check Flap Gate - if leaking attempt to correct.
3/29/2004 16:30	8.6	Metcalfe FPS (West of Metcalfe and St. Mary's Rd)	Check Flap Gate - if leaking attempt to correct.
3/29/2004 18:40	9.1	Colony FPS (Colony south of Mostyn)	Check Flap Gate - if leaking attempt to correct.
		University of Manitoba	External Agency - Notification / Communication
		Kildonan Park	External Agency - Notification / Communication
3/29/2004 9:30	6.9	Mission FPS (Mission St at Archibald St)	Check Flap Gate - if leaking attempt to correct.
		The Forks	External Agency - Notification / Communication
4/1/2004 16:07	16.7	Walmer SRS GC (Walmer at Lyndale)	Verify Flap Gate is operational
3/29/2004 18:00	9	Baltimore FPS (Baltimore at Churchill Dr.)	Check Flap Gate - if leaking attempt to correct.
3/29/2004 18:20	9	Riverdale GC (Riverdale at Kingston Cr.)	Check Flap Gate - if leaking attempt to correct.
3/29/2004 19:30	10.9	Clifton FPS (Clifton at Wolseley Ave)	Check Flap Gate - if leaking attempt to correct.
3/29/2004 10:15	6.6	St. Mary's Rd GC (West of St. Mary's Rd South of Rivergate Dr)	Check Flap Gate - if leaking attempt to correct.
3/29/2004 16:20	8.5	Polson FPS (Polson at Scotia St)	Check Flap Gate - if leaking attempt to correct.
3/29/2004 18:00	9	Munroe GC - (Munroe at Henderson Hwy)	Check Flap Gate - if leaking attempt to correct.
3/29/2004 20:30	9.5	Syndicate FPS (Syndicate north of Rover Ave)	Check Flap Gate - if leaking attempt to correct.
4/1/2004 16:07	16.7	Rue Bertrand LDS GC (at Seine River)	Check Flap Gate - if leaking attempt to correct.
		1 Wellington Cr	Secondary Dyke Activities at Special Property
3/29/2004 20:30	9.5	Assiniboine FPS (Assiniboine at Main St)	Check Flap Gate - if leaking attempt to correct.
3/30/2004 16:21	11.9	D'Arcy at Glengarry GC (cross-connection)	Check Flap Gate - if leaking attempt to correct.

3/29/2004 17:50		8.8	Woodvale and Greene GC	Check Flap Gate - if leaking attempt to correct.	
3/29/2004 16:30		8.5	Jefferson FPS (Jefferson at Scotia St)	Check Flap Gate - if leaking attempt to correct.	
3/29/2004 18:20		8.9	Hart FPS (Hart at Glenwood)	Check Flap Gate - if leaking attempt to correct.	
3/29/2004 19:00		9.2	Selkirk Ave FPS (In front 107 Selkirk Ave)	Check Flap Gate - if leaking attempt to correct.	
3/29/2004 20:30		9.5	Roland FPS (Elmwood at Watt)	Check Flap Gate - if leaking attempt to correct.	
4/1/2004 16:07		16.7	Edgewood LDS GC, E of Youville St (at Seine River)	Check Flap Gate - if leaking attempt to correct.	
3/29/2004 20:50		9.5	Pioneer Ave LDS GC (by CanWest Global Baseball Stadium)	Check Flap Gate - if leaking attempt to correct.	
3/29/2004 11:00	4/26/2004 9:15	7.3	Marion FPS (Marion at Lyndale)	Activate Flood Pump Station (FPS)	
			Eccles GC (newer 1200 mm SRS (west)) (Eccles at Churchill)	Verify Flap Gate is operational	
3/29/2004 17:00		8.7	Rainbow Stage PS (Kildonan Park)	Close Positive Gate	CLOSED GATE TO STATION
3/29/2004 17:30		8.8	Armstrong Interconnection (Armstrong at Main)	Open interconnection PG	OPENED GATE
3/29/2004 17:15		7	Armstrong GC (Armstrong at Scotia St)	Check Flap Gate - if leaking attempt to correct.	
3/29/2004 11:20	4/26/2004 9:00	7.3	Despins FPS (Tache at Despins)	Activate Flood Pump Station (FPS)	
			21 Roslyn Rd	Secondary Dyke Activities at Special Property	
3/29/2004 0:30	4/26/2004 10:30	7.6	Fort Rouge Park FPS (Mayfair at Scott)	Activate Flood Pump Station (FPS)	
3/29/2004 19:00		9.2	Maryland GC (Maryland at Cornish)	Check Flap Gate - if leaking attempt to correct.	
3/29/2004 20:00		9.4	Renfrew GC (Welington near Renfrew)	Check Flap Gate - if leaking attempt to correct.	
			Renfrew GC (Wellington near Renfrew)	Set up temporary pumping	
3/29/2004 13:40	4/26/2004 11:00	7.7	St. Norbert X-Kalay GC (new 2003) (#3154 Pembina- behind St. Norbert C.C.)	Activate Flood Pump Station (FPS)	
3/29/2004 17:45		8.8	Linden FPS (Kildonan at Linden)	Check Flap Gate - if leaking attempt to correct.	
3/29/2004 21:15		9.7	Galt GC (Galt Ave SE of Duncan St)	Check Flap Gate - if leaking attempt to correct.	
			99 Wellington Cr	Secondary Dyke Activities at Special Property	
3/29/2004 16:21		8.5	Mager Dr. FPS (Mager at St. Mary's)	Check Flap Gate - if leaking attempt to correct.	
3/30/2004 16:21		11.9	Oakenwald at Wildwood St	Monitor	
3/30/2004 16:21		11.9	Wildwood Golf Course GC (175 m NE of Tennis Courts, along Private Access Road)	Check Flap Gate - if leaking attempt to correct.	
4/1/2004 16:07	5/3/2004 8:58	16.7	Wildwood Golf Course GC (175 m NE of Tennis Courts, along Private Access Road)	Set up temporary pumping	Not required
3/30/2004 16:21		11.9	Crane at South Drive GC	Check Flap Gate - if leaking attempt to correct.	Positive gate closed 6" pump in place for back updurring const
3/30/2004 16:21	4/26/2004 8:02	11.9	Crane at South Drive GC	Set up temporary pumping	6 "pump left construction going on
3/30/2004 16:21		11.9	Pembina Hwy at Crane GC (crossconnection)	Check Flap Gate - if leaking attempt to correct.	ok
4/1/2004 16:07	5/3/2004 8:58	16.7	Pembina Hwy at Crane GC (crossconnection)	Set up temporary pumping	Not required at this time
4/1/2004 16:07		16.7	Kilkenny N. of Radcliffe (WWS)	Check Flap Gate - if leaking attempt to correct	Flap holding
			28 Lord Av	Build Secondary Dyke	

			32 Lord Av	Build Secondary Dyke	
3/29/2004 17:40		8.8	NE Interceptor (Whellams at Tamarind)	Check Flap Gate - if leaking attempt to correct.	
3/29/2004 17:30		8.8	Rue Messager (approx. 50m east of Tache Av)	Check Flap Gate - if leaking attempt to correct.	
3/29/2004 17:15	4/22/2004 10:15	8.7	La Verendrye FPS (La Verendrye at Tache)	Close Positive Gate	GATE OPEN
3/29/2004 17:15	4/23/2004 9:00	8.7	La Verendrye FPS (La Verendrye at Tache)	Activate Flood Pump Station (FPS)	
			141 Wellington Cr	Secondary Dyke Activities at Special Property	
3/30/2004 12:50		11.4	Newton FPS (Newton at Scotia St)	Check Flap Gate - if leaking attempt to correct.	
3/30/2004 13:25		11.4	Larchdale SPS (Larchdale at Rowandale)	Check Flap Gate - if leaking attempt to correct.	
4/1/2004 12:10		11.4	Larchdale SPS (Larchdale at Rowandale)	Check Flap Gate - if leaking attempt to correct.	
3/31/2004 12:50		14.8	Bibeau Ditch at Lagimodiere Bv	Monitor	SCREEN CLEAR
3/30/2004 11:30		11.5	Lombard GC (Lombard at Mill St)	Check Flap Gate - if leaking attempt to correct.	
3/30/2004 10:20		11.3	Kingston CSO at St. Vital Bridge GC (Edinburgh at Kingston Cr.)	Check Flap Gate - if leaking attempt to correct.	
			255 Wellington Cr	Secondary Dyke Activities at Special Property	
3/31/2004 16:20	4/22/2004 9:30	16.2	Aubrey St (Storm) GC (W of Aubrey at Palmerston)	Close Positive Gate	
3/31/2004 13:30	4/22/2004 10:15	14.8	Ruby GC (Ruby at Palmerston)	Set up temporary pumping	
3/31/2004 15:50	4/22/2004 10:15	15	Ruby GC (Ruby at Palmerston)	Close Positive Gate	
3/31/2004 12:50	4/22/2004 9:30	14.8	Aubrey St (Storm) GC (W of Aubrey at Palmerston)	Set up temporary pumping	
4/1/2004 16:07	4/20/2004 15:07	16.7	Rue des Trappistes GC (Pembina Hwy Bridge N. La Salle River)	Close Positive Gate	
			Rue des Trappistes GC (Pembina Hwy Bridge N. La Salle River)	Close Positive Gate	
3/31/2004 9:00		13.8	Jefferson FPS (Jefferson at Scotia St)	Verify Flap Gate is operational	
3/31/2004 9:10	4/21/2004 9:00	13.8	Jefferson FPS (Jefferson at Scotia St)	Activate Flood Pump Station (FPS)	
4/1/2004 16:07		16.7	Rue Bourgeault LDSGC at Desautels	Check Flap Gate - if leaking attempt to correct.	
4/3/2004 14:27		18.6	Victoria Cr. north leg at Victoria Row	Check Flap Gate - if leaking attempt to correct.	FLAP GATE HOLDING
			400 South Drive - St. John's Ravenscourt	Build Secondary Dyke	
3/31/2004 18:00		16.8	D'Arcy SPS Siphon Gate Chamber (west side of Red River)	Check Flap Gate - if leaking attempt to correct.	
			D'Arcy SPS (Bishop Grandin Bv at west side of Fort Garry Bridge)	Monitor	
3/31/2004 9:30		15	Olive Street GC (Olive at Assiniboine Ave)	Check Flap Gate - if leaking attempt to correct.	
			Olive Street GC (Olive at Assiniboine Ave)	Set up temporary pumping	
3/31/2004 12:50	4/21/2004 15:57	14.8	X-Kalay, East Culvert GC	Close Culvert Gate	
			44 Lord Av	Build Secondary Dyke	
			16 Lord Av	Build Secondary Dyke	
3/31/2004 10:00		15	Hawthorne GC (Kildonan at Hawthorne)	Check Flap Gate - if leaking attempt to correct.	

3/31/2004 9:30	4/21/2004 9:15	13.8	Newton FPS (Newton at Scotia St)	Activate Flood Pump Station (FPS)
3/31/2004 8:50	4/20/2004 10:35	14.8	Burrows GC (in front of 136 Burrows Ave)	Close Positive Gate
3/31/2004 9:50	4/20/2004 9:50	15	McDermot GC (McDermot west of Ship St)	Close Positive Gate
5/16/2004 22:30		8.8	Minerva and Pembina Hwy Median GC	Close Culvert Gate
5/16/2004 14:34		8.8	Turnbull Drive LD FPS (344 Turnbull Drive)	Activate Land Drainage Flood Pump Station (LDFPS)
			Turnbull Drive SRB culvert outfall (south of the Floodway Inlet Structure)	Check Flap Gate - if leaking attempt to correct
			Kildare at Day (cross-connection)	Check Flap Gate - if leaking attempt to correct.
			Wayota N of Kildare (cross-connection)	Check Flap Gate - if leaking attempt to correct.
			St. John's Park FPS GC (South of St. John's FPS)	Check Flap Gate - if leaking attempt to correct.
			Mayfair FPS (Mayfair at Main Street)	Check Flap Gate - if leaking attempt to correct.
			Fermor GC (Fermor at Dunkirk)	Check Flap Gate - if leaking attempt to correct.
			Spence GC (Spence at Balmoral)	Check Flap Gate - if leaking attempt to correct.
			Redboine Yacht Club GC (East of Redboine Yacht Club)	Check Flap Gate - if leaking attempt to correct.
			Osborne at St. Vital Bridge GC	Check Flap Gate - if leaking attempt to correct.
			River Pointe Place GC (Ravine south of Marguerite)	Check Flap Gate - if leaking attempt to correct.
			Health Sciences Centre	External Agency - Notification / Communication
			Walmer SRS GC (Walmer at Lyndale)	Check Flap Gate - if leaking attempt to correct.
			Marion FPS (Marion at Lyndale)	Check Flap Gate - if leaking attempt to correct.
			St. Boniface Hospital	External Agency - Notification / Communication
			Highfield LDS GC at Lyndale Drive	Check Flap Gate - if leaking attempt to correct.
			Jessie FPS (Jessie at Osborne)	Check Flap Gate - if leaking attempt to correct.
			Eccles GC (newer 1200 mm SRS (west)) (Eccles at Churchill)	Check Flap Gate - if leaking attempt to correct.
			Cockburn FPS (Cockburn at Churchill Drive)	Check Flap Gate - if leaking attempt to correct.
			Ash FPS (Ash at Wellington)	Check Flap Gate - if leaking attempt to correct.
			Av De La Cathedrale at Tache Av (New LDS GC)	Check Flap Gate - if leaking attempt to correct.
			St. Norbert X-Kalay GC (new 2003) (#3154 Pembina- behind St. Norbert C.C.)	Check Flap Gate - if leaking attempt to correct.
			La Verendrye FPS (La Verendrye at Tache)	Check Flap Gate - if leaking attempt to correct.
			Despins FPS (Tache at Despins)	Check Flap Gate - if leaking attempt to correct.
			Metcalfe FPS (West of Metcalfe and St. Mary's Rd)	Check Flap Gate - if leaking attempt to correct.
			Colony FPS (Colony south of Mostyn)	Check Flap Gate - if leaking attempt to correct.
			University of Manitoba	External Agency - Notification / Communication
			Kildonan Park	External Agency - Notification / Communication

		Mission FPS (Mission St at Archibald St)	Check Flap Gate - if leaking attempt to correct.	
		Walmer SRS GC (Walmer at Lyndale)	Verify Flap Gate is operational	
		The Forks	External Agency - Notification / Communication	
		Baltimore FPS (Baltimore at Churchill Dr)	Check Flap Gate - if leaking attempt to correct.	
		Riverdale GC (Riverdale at Kingston Cr)	Check Flap Gate - if leaking attempt to correct.	
		Clifton FPS (Clifton at Wolseley Ave)	Check Flap Gate - if leaking attempt to correct.	
		St. Mary's Rd GC (West of St. Mary's Rd South of Rivergate Dr)	Check Flap Gate - if leaking attempt to correct.	
5/16/2004 15:50	9.3	Polson FPS (Polson at Scotia St)	Check Flap Gate - if leaking attempt to correct.	
5/16/2004 14:35	9.2	Munroe GC - (Munroe at Henderson Hwy)	Check Flap Gate - if leaking attempt to correct.	
		Syndicate FPS (Syndicate north of Rover Ave)	Check Flap Gate - if leaking attempt to correct.	
		Rue Bertrand LDS GC (at Seine River)	Check Flap Gate - if leaking attempt to correct.	
		1 Wellington Cr	Secondary Dyke Activities at Special Property	
5/16/2004 17:00	9.4	Assiniboine FPS (Assiniboine at Main St)	Check Flap Gate - if leaking attempt to correct.	
		D'Arcy at Glengarry GC (cross-connection)	Check Flap Gate - if leaking attempt to correct.	
5/16/2004 15:40	9.3	Jefferson FPS (Jefferson at Scotia St)	Check Flap Gate - if leaking attempt to correct.	
5/16/2004 15:00	9.2	Woodvale and GreeneGC	Check Flap Gate - if leaking attempt to correct.	
5/16/2004 14:20	9.2	Hart FPS (Hart at Glenwood)	Check Flap Gate - if leaking attempt to correct.	
5/16/2004 16:05	9.3	Selkirk Ave FPS (In front 107 Selkirk Ave)	Check Flap Gate - if leaking attempt to correct.	
5/16/2004 14:05	9.1	Roland FPS (Elmwood at Watt)	Check Flap Gate - if leaking attempt to correct.	
		Edgewood LDS GC, E of Youville St (at Seine River)	Check Flap Gate - if leaking attempt to correct.	
5/16/2004 13:30	9.1	Pioneer Ave LDS GC (by CanWest-Global Baseball Stadium)	Check Flap Gate - if leaking attempt to correct.	
5/16/2004 12:30	9	Marion FPS (Marion at Lyndale)	Activate Flood Pump Station (FPS)	
		Eccles GC (newer 1200 mm SRS (west)) (Eccles at Churchill)	Verify Flap Gate is operational	
5/16/2004 15:20	9.2	Rainbow Stage PS (Kildonan Park)	Close Positive Gate	POSITIVE GATE TO RIVER CLOSED STATION IS ACTIVATED
5/16/2004 15:30	9.2	Armstrong GC (Armstrong at Scotia St)	Check Flap Gate - if leaking attempt to correct.	
5/16/2004 17:00	9.4	Armstrong Interconnection (Armstrong at Main)	Open interconnection PG	
5/16/2004 13:30	9	Despins FPS (Tache at Despins)	Activate Flood Pump Station (FPS)	
		21 Roslyn Rd	Secondary Dyke Activities at Special Property	
5/16/2004 13:00	9	Fort Rouge Park FPS (Mayfair at Scott)	Activate Flood Pump Station (FPS)	
5/16/2004 17:15	9.4	Maryland GC (Maryland at Cornish)	Check Flap Gate - if leaking attempt to correct.	
5/16/2004 17:30	9.4	Renfrew GC (Wellington near Renfrew)	Check Flap Gate - if leaking attempt to correct.	
		Renfrew GC (Wellington near Renfrew)	Set up temporary pumping	

5/16/2004 22:45	5/28/2004 10:00	7.4	St. Norbert X-Kalay GC (new 2003) (#3154 Pembina- behind St. Norbert C.C.)	Activate Flood Pump Station (FPS)
			St. Norbert X-Kalay GC (new 2003) (#3154 Pembina- behind St. Norbert C.C.)	Activate Flood Pump Station (FPS)
5/16/2004 14:50		9.2	Linden FPS (Kildonan at Linden)	Check Flap Gate - if leaking attempt to correct.
5/16/2004 13:40		9.1	Galt GC (Galt Ave SE of Duncan St)	Check Flap Gate - if leaking attempt to correct.
			99 Wellington Cr	Secondary Dyke Activities at Special Property
			Mager Dr. FPS (Mager at St. Mary's)	Check Flap Gate - if leaking attempt to correct.
			Oakenwald at Wildwood St	Monitor
			Wildwood Golf Course GC (175 m NE of Tennis Courts, along Private Access Road)	Check Flap Gate - if leaking attempt to correct.
			Wildwood Golf Course GC (175 m NE of Tennis Courts, along Private Access Road)	Set up temporary pumping
			Crane at South Drive GC	Check Flap Gate - if leaking attempt to correct.
			Crane at South Drive GC	Set up temporary pumping
			Pembina Hwy at Crane GC (crossconnection)	Check Flap Gate - if leaking attempt to correct.
			Pembina Hwy at Crane GC (crossconnection)	Set up temporary pumping
			Kilkenny N. of Radcliffe (WWS)	Check Flap Gate - if leaking attempt to correct.
			NE Interceptor (Whellams at Tamarind)	Check Flap Gate - if leaking attempt to correct.
			Rue Messager (approx. 50m east of Tache Av)	Check Flap Gate - if leaking attempt to correct.
5/16/2004 22:30	5/25/2004 8:00	10.5	La Verendrye FPS (La Verendrye at Tache)	Activate Flood Pump Station (FPS)
			La Verendrye FPS (La Verendrye at Tache)	Close Positive Gate
			La Verendrye FPS(La Verendrye at Tache)	Activate Flood Pump Station (FPS)
			Lombard GC (Lombard at Mill St)	Check Flap Gate - if leaking attempt to correct.
			Kingston CSO at St. Vital Bridge GC (Edinburgh at Kingston Cr.)	Check Flap Gate - if leaking attempt to correct.
			Ruby GC (Ruby at Palmerston)	Close Positive Gate
			Aubrey St (Storm) GC (W of Aubrey at Palmerston)	Set up temporary pumping
			Ruby GC (Ruby at Palmerston)	Set up temporary pumping
			Aubrey St (Storm) GC (W of Aubrey at Palmerston)	Close Positive Gate
			Minerva and Pembina Hwy Median GC	Close Culvert Gate
			Turnbull Drive LD FPS (344 Turnbull Drive)	Activate Land Drainage Flood Pump Station (LDFPS)
			Turnbull Drive SRB culvert outfall (south of the Floodway Inlet Structure)	Check Flap Gate - if leaking attempt to correct.
			Kildare at Day (cross-connection)	Check Flap Gate - if leaking attempt to correct.
			Wayota N of Kildare (cross-connection)	Check Flap Gate - if leaking attempt to correct.
			Kildare at Leola (cross-connection)	Check Flap Gate - if leaking attempt to correct.
			Wayota at Coldstream (cross-connection)	Check Flap Gate - if leaking attempt to correct.

Wayota at St. Claire (cross-connection)	Check Flap Gate - if leaking attempt to correct.
Kildare at Wabasha (cross-connection)	Check Flap Gate - if leaking attempt to correct.
Yale Ave at Day St (cross-connection)	Check Flap Gate - if leaking attempt to correct.
Wayota at Yale (cross-connection)	Check Flap Gate - if leaking attempt to correct.
Brewster St at Regent Ave W (cross-connection)	Check Flap Gate - if leaking attempt to correct.
St. John's Park FPS GC (South of St. John's FPS)	Check Flap Gate - if leaking attempt to correct.
Mayfair FPS (Mayfair at Main Stree)	Check Flap Gate - if leaking attempt to correct.
Fermor GC (Fermor at Dunkirk)	Check Flap Gate - if leaking attempt to correct.
Spence GC (Spence at Balmoral)	Check Flap Gate - if leaking attempt to correct.
Osborne at St. Vital Bridge GC	Check Flap Gate - if leaking attempt to correct.
Redboine Yacht Club GC (East of Redboine Yacht Club)	Check Flap Gate - if leaking attempt to correct.
River Pointe Place GC (Ravine south of Marguerite)	Check Flap Gate - if leaking attempt to correct.
Health Sciences Centre	External Agency - Notification / Communication
Walmer SRS GC (Walmer at Lyndale)	Check Flap Gate - if leaking attempt to correct.
Marion FPS (Marion at Lyndale)	Check Flap Gate - if leaking attempt to correct.
St. Boniface Hospital	External Agency - Notification / Communication
Highfield LDS GC at Lyndale Drive	Check Flap Gate - if leaking attempt to correct.
Jessie FPS (Jessie at Osborne)	Check Flap Gate - if leaking attempt to correct.
Eccles GC (newer 1200 mm SRS (west)) (Eccles at Churchill)	Check Flap Gate - if leaking attempt to correct.
Cockburn FPS (Cockburn at Churchill Drive)	Check Flap Gate - if leaking attempt to correct.
Ash FPS (Ash at Wellington)	Check Flap Gate - if leaking attempt to correct.
Av De La Cathedrale at Tache Av (New LDS GC)	Check Flap Gate - if leaking attempt to correct.
St. Norbert X-Kalay GC (new 2003) (#3154 Pembina- behind St. Norbert C.C.)	Check Flap Gate - if leaking attempt to correct.
La Verendrye FPS (La Verendrye at Tache)	Check Flap Gate - if leaking attempt to correct.
Despins FPS (Tache at Despins)	Check Flap Gate - if leaking attempt to correct.
Metcalfe FPS (West of Metcalfe and St. Mary's Rd)	Check Flap Gate - if leaking attempt to correct.
Colony FPS (Colony south of Mostyn)	Check Flap Gate - if leaking attempt to correct.
University of Manitoba	External Agency - Notification / Communication
Kildonan Park	External Agency - Notification / Communication
Mission FPS (Mission St at Archibald St)	Check Flap Gate - if leaking attempt to correct.
Walmer SRS GC (Walmer at Lyndale)	Verify Flap Gate is operational
The Forks	External Agency - Notification / Communication

			Baltimore FPS (Baltimore at Churchill Dr)	Check Flap Gate - if leaking attempt to correct.
			Riverdale GC (Riverdale at Kingston Cr)	Check Flap Gate - if leaking attempt to correct.
			Clifton FPS (Clifton at Wolseley Ave)	Check Flap Gate - if leaking attempt to correct.
			St. Mary's Rd GC (West of St. Mary's Rd South of Rivergate Dr)	Check Flap Gate - if leaking attempt to correct.
			Polson FPS (Polson at Scotia St)	Check Flap Gate - if leaking attempt to correct.
			Munroe GC - (Munroe at Henderson Hwy)	Check Flap Gate - if leaking attempt to correct.
			Syndicate FPS (Syndicate north of Rover Ave)	Check Flap Gate - if leaking attempt to correct.
			Rue Bertrand LDS GC (at Seine River)	Check Flap Gate - if leaking attempt to correct.
			1 Wellington Cr	Secondary Dyke Activities at Special Property
			Assiniboine FPS (Assiniboine at Main St)	Check Flap Gate - if leaking attempt to correct.
			D'Arcy at Glengarry GC (crossconnection)	Check Flap Gate - if leaking attempt to correct.
			Jefferson FPS (Jefferson at Scotia St)	Check Flap Gate - if leaking attempt to correct.
			Woodvale and Greene GC	Check Flap Gate - if leaking attempt to correct.
			Hart FPS (Hart at Glenwood)	Check Flap Gate - if leaking attempt to correct.
			Selkirk Ave FPS (In front 107 Selkirk Ave)	Check Flap Gate - if leaking attempt to correct.
			Roland FPS (Elmwood at Watt)	Check Flap Gate - if leaking attempt to correct.
			Edgewood LDS GC, E of Youville St (at Seine River)	Check Flap Gate - if leaking attempt to correct.
			Pioneer Ave LDS GC (by CanWestGlobal Baseball Stadium)	Check Flap Gate - if leaking attempt to correct.
			Manon FPS (Manon at Lyndale)	Activate Flood Pump Station (FPS)
			Eccles GC (newer 1200 mm SRS (west)) (Eccles at Churchill)	Verify Flap Gate is operational
			Rainbow Stage PS (Kildonan Park)	Close Positive Gate
5/30/2004 11:30		8.9	Armstrong GC (Armstrong at Scotia St)	Check Flap Gate - if leaking attempt to correct.
5/30/2004 11:55		8.9	Armstrong Interconnection (Armstrong at Main)	Open interconnection PG
5/30/2004 12:30	6/22/2004 0:45	8.9	Despins FPS (Tache at Despins)	Activate Flood Pump Station (FPS)
			21 Roslyn Rd	Secondary Dyke Activities at Special Property
6/2/2004 15:31	6/17/2004 9:15	13.6	Fort Rouge Park FPS (Mayfair at Scott)	Activate Flood Pump Station (FPS)
5/30/2004 16:25		9.5	Maryland GC (Maryland at Cornish)	Check Flap Gate - if leaking attempt to correct.
			Renfrew GC (Wellington near Renfrew)	Check Flap Gate - if leaking attempt to correct.
			Renfrew GC (Wellington near Renfrew)	Set up temporary pumping
5/30/2004 13:45	6/17/2004 13:00	9	St. Norbert X-Kalay GC (new 2003) (#3154 Pembina behind St. Norbert C.C.)	Activate Flood Pump Station (FPS)
5/30/2004 12:15		9	Linden FPS (Kildonan at Linden)	Check Flap Gate - if leaking attempt to correct.
5/30/2004 15:30		9.2	Galt GC (Galt Ave SE of Duncan St)	Check Flap Gate - if leaking attempt to correct.

			99 Wellington Cr	Secondary Dyke Activities at Special Property	
5/30/2004 12:45		9	Mager Dr. FPS (Mager at St. Mary's)	Check Flap Gate - if leaking attempt to correct.	
6/2/2004 7:31		1337	Oakenwald at Wildwood St	Monitor	sanitary sewer ok
6/2/2004 7:31		1337	Wildwood Golf Course GC (175 m NE of Tennis Courts, along Private Access Road)	Check Flap Gate - if leaking attempt to correct.	FLAP HOLDING
6/2/2004 7:31		1337	Wildwood Golf Course GC (175 m NE of Tennis Courts, along Private Access Road)	Set up temporary pumping	PUMP NOT REQUIRED AT THIS TIME
6/1/2004 9:00		13	Crane at South Drive GC	Check Flap Gate - if leaking attempt to correct.	Bill K. put in but Dave G. got call
6/1/2004 9:30		13	Crane at South Drive GC	Set up temporary pumping	Blue pump set up
6/2/2004 7:31		1337	Pembina Hwy at Crane GC (crossconnection)	Check Flap Gate - if leaking attempt to correct.	NO PROBLEMS FLAP OPERATIONAL
			Pembina Hwy at Crane GC (crossconnection)	Set up temporary pumping	
6/2/2004 7:31		1337	Kilkenny N. of Radcliffe (WWS)	Check Flap Gate - if leaking attempt to correct.	FLAP HOLDING
			28 Lord Av	Build Secondary Dyke	
			32 Lord Av	Build Secondary Dyke	
			NE Interceptor (Whellams at Tamarind)	Check Flap Gate - if leaking attempt to correct.	
			Rue Messager (approx. 50m east of Tache Av)	Check Flap Gate - if leaking attempt to correct.	
5/31/2004 13:20	6/17/2004 8:50	11.6	La Verendrye FPS (La Verendrye at Tache)	Activate Flood Pump Station (FPS)	
			La Verendrye FPS (La Verendrye at Tache)	Close Positive Gate	
5/31/2004 13:50		11.6	Newton FPS (Newton at Scotia St)	Check Flap Gate - if leaking attempt to correct.	
			Larchdale SPS (Larchdale at Rowandale)	Check Flap Gate - if leaking attempt to correct.	
			Larchdale SPS (Larchdale at Rowandale)	Check Flap Gate - if leaking attempt to correct.	
			Bibeau Ditch at Lagimodiere Bv	Monitor	
			Lombard GC (Lombard at Mill St)	Check Flap Gate - if leaking attempt to correct.	
			Kingston CSO at St. Vital Bridge GC (Edinburgh at Kingston Cr)	Check Flap Gate - if leaking attempt to correct.	
			255 Wellington Cr	Secondary Dyke Activities at Poperty	
			Aubrey St (Storm) GC (W of Aubrey at Palmerston)	Close Positive Gate	
			Ruby GC (Ruby at Palmerston)	Set up temporary pumping	
			Aubrey St (Storm) GC (W of Aubrey at Palmerston)	Set up temporary pumping	
			Ruby GC (Ruby at Palmerston)	Close Positive Gate	
5/31/2004 16:00	6/15/2004 15:28	10.8	Rue des Trappistes GC (Pembina Hwy Bridge N. La Salle River)	Close Positive Gate	water coming in from river
5/31/2004 13:30		11.6	Jefferson FPS (Jefferson at Scotia St)	Verify Flap Gate is operational	
5/31/2004 13:30	6/11/2004 10:15	11.6	Jefferson FPS (Jefferson at Scotia St)	Activate Flood Pump Station (FPS)	
			Rue Bourgeault LDS GC at Desautels	Check Flap Gate - if leaking attempt to correct.	
			Victoria Cr. north leg at Victoria Row	Check Flap Gate - if leaking attempt to correct.	

			400 South Drive - St. John's Ravenscourt	Build Secondary Dyke
			D'Arcy SPS Siphon Gate Chamber (west side of Red River)	Check Flap Gate - if leaking attempt to correct
			D'Arcy SPS (Bishop Grandin Bv at west side of Fort Garry Bridge)	Monitor
			Olive Street GC (Olive at Assiniboine Ave)	Check Flap Gate - if leaking attempt to correct
			Olive Street GC (Olive at Assiniboine Ave)	Set up temporary pumping
			X-Kalay, East Culvert GC	Close Culvert Gate
			Hawthorne GC (Kildonan at Hawthorne)	Check Flap Gate - if leaking attempt to correct
5/31/2004 13:50	6/11/2004 10:30	11.6	Newton FPS (Newton at Scotia St)	Activate Flood Pump Station (FPS)
6/8/2004 14:15	6/10/2004 14:15	15.2	Burrows GC (in front of 136 Burrows Ave)	Close Positive Gate
6/8/2004 14:20	6/10/2004 14:20	15.2	McDermot GC (McDermot west of Ship St)	Close Positive Gate
5/31/2004 13:40	6/11/2004 9:10	11.6	Metcalfe FPS (West of Metcalfe and St. Mary's Rd)	Activate Flood Pump Station(FPS)
			Metcalfe FPS (West of Metcalfe and St. Mary's Rd)	Verify Flap Gate is operational
5/31/2004 13:20	6/11/2004 9:00	11.6	Mager Dr. FPS (Mager at St. Mary's)	Activate Flood Pump Station (FPS)
			Churchill Drive Public Washroom (N. of St. Vital Bridge)	External Agency - Notification / Communication
			Spence GC (Spence at Balmoral)	Verify Flap Gate is operational
			Somerset at Riverside GC (crossconnection)	Check Flap Gate - if leaking attempt to correct
			Somerset at Riverside GC (crossconnection)	Set up temporary pumping
			Moore GC (Moore Av at River Rd)	Check Flap Gate - if leaking attempt to correct
			Deer Lodge Place (Between #44 & #46)	Close Positive Gate
			947 Kilkenny GC (Discharge Chamber across from SPS)	Check Flap Gate - if leaking attempt to correct
			Kilkenny at Rice Rd GC (crossconnection)	Check Flap Gate - if leaking attempt to correct
			Ducharme Ave GC (Ducharme at Villeneuve)	Close Positive Gate
			42 Lord Av	Build Secondary Dyke
			140 Turnbull Dr	Build Secondary Dyke
6/4/2004 12:01	6/11/2004 11:00	13.9	Linden FPS (Kildonan at Linden)	Activate Flood Pump Station (FPS)
			Bredin Drive GC (near 340 Bredin Ave)	Check Flap Gate - if leaking attempt to correct
6/4/2004 9:00	6/11/2004 10:15	13.9	Syndicate FPS (Syndicate north of Rover Ave)	Activate Flood Pump Station (FPS)
6/8/2004 14:30	6/10/2004 14:20	15.2	Archibald U.P. LD-FPS (North of #7 Archibald St)	Activate Land Drainage Flood Pump Station (LDFPS)
6/4/2004 9:20	6/11/2004 9:50	13.9	Bannatyne FPS (Bannatyne at Ship St)	Activate Flood Pump Station (FPS)
			Bannatyne FPS (Bannatyne at Ship St)	Check Flap Gate - if leaking attempt to correct
6/4/2004 9:00	6/11/2004 10:00	13.9	Baltimore FPS (Baltimore at Churchill Dr)	Activate Flood PumpStation (FPS)
			Eccles GC (Older 750 mm SRS) (East) (Eccles at Churchill)	Check Flap Gate - if leaking attempt to correct

			20 Lyndale Dr	Build Secondary Dyke
			Redboine Yacht Club GC (East of Redboine Yacht Club)	Verify Flap Gate is operational
			Canora GC (Canora at Palmerston)	Activate Flood Pump Station (FPS)
			Canora GC (Canora at Palmerston)	Close Positive Gate
6/3/2004 10:00	6/11/2004 10:15	13.9	Cockburn FPS (Cockburn at Churchill Drive)	Activate Flood Pump Station (FPS)
			Oakenwald at Wildwood St	Set up temporary pumping
			Chataway GC (Wellington at Chataway)	Check Flap Gate - if leaking attempt to correct.
			Douglas Park Road (#82)	Close Positive Gate
			Ferry Rd. GC (Ferry Rd S. Assiniboine Ave)	Check Flap Gate - if leaking attempt to correct.
			Ferry Road SPS (beside 1874 Assiniboine Ave)	Set up temporary pumping
			Conway GC (Conway at Portage Ave)	Check Flap Gate - if leaking attempt to correct.
			Parkwood Place Dyke (South Culvert)	Close Culvert Gate
			S. St. Therese Ave (LS-1 outfall)	Close Positive Gate
			Hart FPS (Hart at Glenwood)	Activate Flood Pump Station (FPS)
			Bredin Drive GC (near 340 Bredin Ave)	Monitor
			Bredin Drive GC (near 340 Bredin Ave)	Set up temporary pumping
			Lemay at Lord GC	Close Positive Gate
			Lemay at Lord GC	Set up temporary pumping

UNIVERSITY OF MANITOBA | **Physical Plant**

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January 21, 2005

Mr. Jim McLean, P. Eng.
Dyking Commissioner
Infrastructure and Operations
Box 19 – 200 Saulteaux Crescent
Winnipeg, Manitoba
R3J 3W3

Dear Mr. McLean:

Subject: ***Dyking Comissioner's 2004 Annual Report***

The following is in response to the questionnaire for the Annual Report on the Primary Dyking Systems within the City of Winnipeg.

1. **2004 Calendar Year**

   a) Difficulties and problems encountered.

      None

   b) Maintenance and repairs carried out.

      None

   c) New Sewer Outfall Gate Structures constructed.

      None

   d) Improvements and modifications carried out.

      None

2. **Proposed Plans for Future**

   There are no further plans for new structures or modifications at this time.

a) Evaluation of river bank stability in critical areas.

There are no evaluation studies underway or planned at this time.

b) Monitoring erosion of river banks in critical areas.

Monitoring of riverbanks is conducted regularly at 13 river bank locations. There was no significant erosion detected during 2004.

c) Any remedial works undertaken or completed in the reporting year.

None

3. Availability and Location of Proposed Borrow Pits

No changes are suggested in the availability or location of proposed borrow pit for 2004.

Yours truly,

Brian J. Rivers
Director of Physical Plant

bjr/nl

cc: Mrs. D. McCallum, Vice President (Administration)
Mr. W. A. Simms, Associate Vice President (Administration)